

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
22 September 2005 (22.09.2005)

PCT

(10) International Publication Number  
**WO 2005/086640 A2**

(51) International Patent Classification: Not classified

(21) International Application Number:  
PCT/US2005/005078

(22) International Filing Date: 17 February 2005 (17.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/546,118 19 February 2004 (19.02.2004) US

(71) Applicant (for all designated States except US):  
**NOVOZYMES NORTH AMERICA, INC** [US/US]; 77  
Perry Chapel Church Road, Franklinton, NC 27525 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HENDERSON, Lori** [US/US]; 1404 Horsepen Place, Raleigh, NC 27615 (US). **COSTABLE, Carmen** [US/US]; 147 Countess Drive, West Henrietta, NY 14586 (US).

(74) Agent: **LAMBIRIS, Elias, J.**; Novozymes North America, Inc, 500 Fifth Avenue, Suite 1600, New York, NY 10110 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: LIQUEFACTION PROCESSES

(57) Abstract: The present invention provides a process of liquefying starch-containing material comprising the step of treating said starch-containing material with at least one alpha-amylase and a maltogenic amylase or at least one amylase and at least one esterase.



**WO 2005/086640 A2**